IntelliVue Wireless 802.11 Solution

Technical Data Sheet

Description

IntelliVue Patient Monitors using 802.11 can coexist with other wireless devices such as VoIP phones and mobile appliances on a customer's enterprise WLAN. A robust and high availability WLAN is required to support the physiological waves, parameters and alarms transmitted from IntelliVue Patient Monitors.

Features

- Leverage existing hospital WLAN
- Operate on 802.11 a/b/g networks
- Utilize advanced encryption and authentication including WPA2-PSK and WPA2-Enterprise
- Enable wireless QoS with support for WMM (Wireless MultiMedia)

PHILIPS

Planning and Preparing Your Network

The following are important considerations when planning and preparing the hospital network for a patient monitoring system:

- Discuss expectations and requirements with the clinical users for physiological monitoring.
- Involve information technology staff early to align wireless strategy and decisions and prepare for any potential updates to the wireless network to support a patient monitoring system.
- Review the IntelliVue Customer-supplied Clinical Network (CSCN) Specifications.
- Verify that the current or planned hospital infrastructure complies with the Philips approved 802.11 vendor models and software versions.
- Determine coverage area, including in-room bathrooms, corridors and transport areas.
- Complete an RF site survey to verify that all Philips RF requirements are met.
- Assess compatibility requirements among wireless solutions to avoid coexistence issues.
- Agree on change control, maintenance and management responsibilities among biomedical engineering and information technology staff.
- Consider hospital policies, procedures and standards for wireless medical devices including safety, security and privacy.
- Perform risk assessment for connecting wireless medical devices to the hospital network.

Service Offerings

Philips offers a variety of wireless networking and product-related services for the IntelliVue Patient Monitoring solution based on Philips strong experience with deploying life critical clinical systems.
For customers that want to use their enterprise WLAN on which to run Philips 802.11 IntelliVue Patient Monitors, Philips requires a radio frequency (RF) survey to identify whether the network can support the robust requirements of life critical data. Philips can review an existing RF Survey for compliance with the Philips specification.
Philips networking services include:

- Network design consultation
- Network evaluation
- Radio frequency site survey
- Remote go-live assistance

Helpful Resources

When considering operating IntelliVue Patient Monitors on your enterprise network, there are a number of resources available to provide additional guidance. They include:

- IEC 80001-2-3: Application of risk management for IT-networks incorporating medical devices -- Guidance for wireless networks
- IEC 80001-1:2010 Application of risk management for IT-networks incorporating medical devices -- Part 1: Roles, responsibilities and activities
- IEC 60601-1-1 - Medical Electrical Equipment Part 1-1: General Requirements for Safety
- AAMI TIR-18:2010 Guidance on electromagnetic compatibility of medical devices in healthcare facilities

Specification Summary

The following table lists the networking capabilities and requirements for the IntelliVue Patient Monitoring solution. Careful considerations of these specifications and their impact on a hospital's WLAN must be completed as part of the network qualification process.

IntelliVue Patient Monitors Refer to Philips for product ordering guide for further information	
Requirement	**Specification**
Wireless Protocol	IEEE 802.11a/b/g
WLAN vendor interoperability	Required[a]
RF Site Survey	Required
SSID	Dedicated
RSSI	≥ -67 dBm
Signal to noise ratio	≥ 25 dB
Co-channel separation	≥ 20 dB
Security[b]	WPA-PSK, WPA2-PSK, WPA2-Enterprise
802.1X Authentication[c] EAP Types	TTLS PEAP-MS-CHAPv2 Certificate check must be enabled
Average network traffic generated per device	< 40 kbps
IP address assignment	DHCP
Packet latency	≤ 100 milliseconds between IntelliVue Patient Monitor and PIIC iX
Jitter	≤ 5%
QoS	Wi-Fi Multimedia (WMM) VOICE or VIDEO WMM category recommended
Multicast traffic	Internet Group Management Protocol (IGMP), version 2 only Cisco Group Management Protocol (CGMP)

[a] Philips tests interoperability with WLAN vendors and defines compatibility with model number and software revisions
[b] Available security protocols are dependant upon the software version.
[c] When WPA2-Enterprise is used.

Although not a comprehensive list, the following capabilities are not currently supported and may attribute to compatibility or performance issues:

- Cisco Compatible Extensions (CCX)
- Admission Control (WMM-AC)
- Transmit Power Control
- Federal Information Processing Standard (FIPS)

Adherence to requirements

Additional details on all requirements are included in the CSCN specification document. Failure to meet any of the requirements listed in the CSCN Specification may result in the delay or loss of critical patient data or alarms without warning, which can delay diagnosis or treatment and result in life-threatening and irreversible injury to patients.

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